CLAIMS

We claim:

1   1.   A method of reducing contouring in a liquid crystal on silicon (LCOS) display,
2   said method comprising:
3   receiving a frame-doubled input signal comprising a positive picture and a
4   negative picture; and
5   applying a first dither to said input signal, said first dither selectively modifying
6   a primary-color gamma value of one of said pictures resulting in reduced contouring
7   in said input signal.

1   2.   The method of claim 1, wherein said first dither is specified by a gamma
2   table.

1   3.   The method of claim 1, wherein said one of said pictures is said negative
2   picture.

1   4.   The method of claim 1, wherein said one of said pictures is said positive
2   picture.

1   5.   The method of claim 1, wherein said input signal is an 8-bit signal and said
2   output signal is a 10-bit signal.

1   6.   The method of claim 1, wherein said primary-color is selected from the group
2   consisting of red, green, and blue.

1   7.   The method of claim 1, further comprising:

2   applying a second dither to said input signal, wherein said first and second

3   dither result in an output signal having reduced brightness level repetition for

4   consecutive input levels.

1   8.   The method of claim 7, wherein said first dither is specified by a gamma table

2   and said second dither is applied at an input of said gamma table.

1   9.   The method of claim 7, wherein said second dither is performed by applying a

2   one-least-significant-bit dither signal to said input signal.

1   10.   The method of claim 9, wherein said second dither produces a quincunx

2   pattern.

1   11.   The method of claim 10, wherein said quincunx pattern is alternately inverted

2   and not inverted.

1   12.   The method of claim 7, wherein said second dither is selected from the group

2   consisting of a 2-state dither, a 4-state dither, and an 8-state dither.

1   13.   A method of reducing contouring in a liquid crystal on silicon (LCOS) display,

2   said method comprising:

3   receiving a frame-doubled input signal comprising a positive picture and a

4   negative picture; and

5   applying a first dither to said input signal wherein said first dither is performed

6   by applying a one-least-significant-bit dither signal to said input signal.

1   14.   A method of reducing contouring in a liquid crystal on silicon (LCOS) display,

2   said method comprising:

3   (a)   receiving a frame-doubled input signal comprising a positive picture

4   and a negative picture;

5   (b)   applying a first dither to said input signal, said first dither specified by a

6   gamma table and selectively modifying a primary-color gamma value of one of said

7   pictures; and

8   (c)   applying a second dither to said input signal at an input of said gamma

9   table, wherein said first and second dither result in an output signal having reduced

10   brightness level repetition for consecutive input levels.

1   15.   A multiple-dither system for reducing contouring in a display comprising:

2   a memory having a gamma table stored therein, said gamma table specifying

3   a first dither to apply to a received, frame-doubled input signal comprising a positive

4   and a negative picture, wherein said first dither selectively modifies at least one

5   primary-color gamma value of one of said pictures;

6   a processor communicatively linked to said memory, said processor

7   generating said gamma table and loading said gamma table in said memory;

8   a dither unit communicatively linked to said processor, said dither unit

9   applying a second dither comprising a one-least-significant-bit dither signal to the

10   input signal at an input to said gamma table; and

11   a liquid crystal on silicon display for producing an image based upon said

12   multiple-dithered input signal.

1   16.   The system of claim 15, further comprising:

2   an analog-to-digital converter, said analog to digital converter digitizing said

3   input signal and providing said digitized input signal to said processor.

1   17.   The system of claim 15, wherein said one of said pictures is said negative

2   picture and said gamma table has a positive portion and a dithered negative portion.

1   18.   The system of claim 15, wherein said one of said pictures is said positive

2   picture and said gamma table has a dithered positive portion and a negative portion.